

G31 Series

G31+ICH7 Chipset

Socket LGA755 Processor Mainboard

User's Manual

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P/N: 88ENG31A03

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Chapter 1 Introduction

1.1 Package Checklist

Thank you for choosing our product.

Please check the following packing and accessories, if there is any broken or part missing, please contact with your franchiser.

- HDD Cable X 1
- Serial ATA Cable X 1
- Rear I/O Panel X 1
- User's Manual X 1
- Driver/Utility CD X 1
- Serial ATA Power Cable X 1
- FDD Cable X 1

The items listed above are for reference only, and are subject to change without notice.

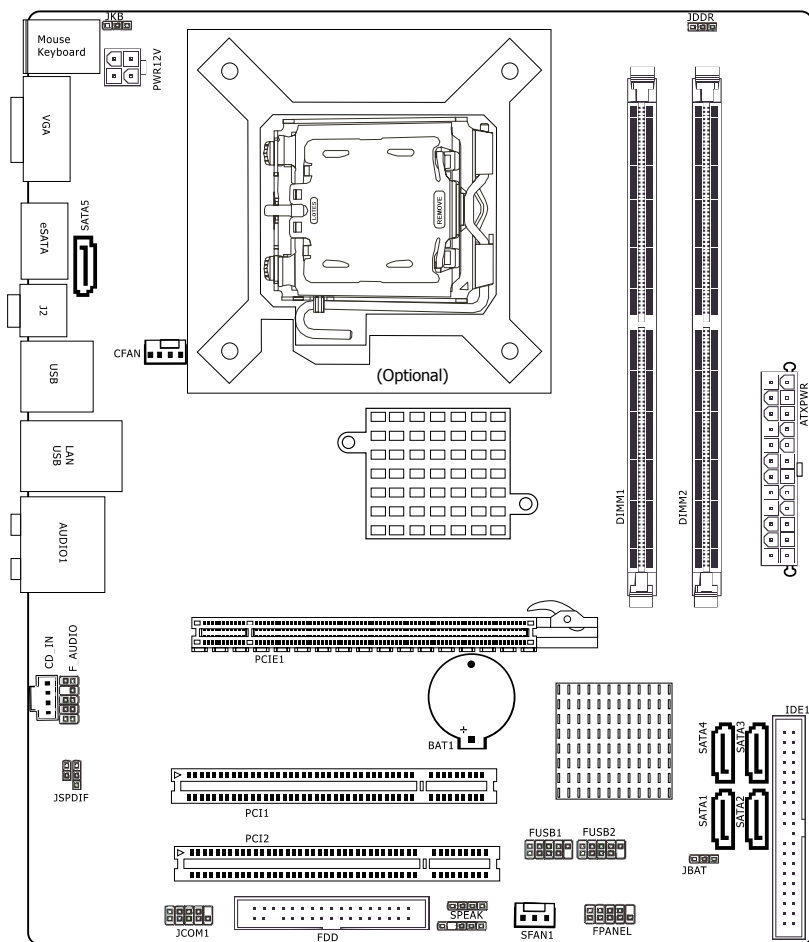
1.2 Specifications-1 (for JW-IG31-MX)

CPU	- LGA775 socket for Intel® Core™2 Extreme/ Core™2 Quad/ Core™2 Duo/ Pentium® Dual Core/ Pentium® D/Pentium® 4 (800MHz FSB)/ Celeron® (Conroe-L) Processors - FSB 1333MHz/1066MHz/800MHz/ - Hyper Threading Technology
Main Chipset	- Based on G31 + ICH7 - ICH7: Intel FW82801GB
Graphics	- Intel Graphics Media Accelerator 3100
Main Memory	- 2 x 240-pin DIMM slots support - Maximum memory capacity up to 4GB - Supports Dual Channel DDRII 667/800MHz
BIOS	- Supports Plug&Play - Supports BIOS ROM Write Protect - Supports Advanced Power Management ACPI,STR (S3 Optional) - Supports 1x SYS FAN, 1x CPU FAN - CPU temperature, Fan speed, System Voltage monitoring
I/O Chipset	- Onboard Winbond W83627
Integrated Ports	- 1 x PS/2 Keyboard port - 1 x PS/2 Mouse port - 1 x VGA port - 1 x Debug LED (Optional) - 1 x SPDIF IN, 1 x SPDIF Out port (Optional) - 1 x RJ45 port - 8 x USB 2.0 ports, USB 1.1 is compliant - 1 x eSATA port - 1 x IR port (optional) - 4 x SATA ports by ICH7 , Maximum Speed to 3GB/s - 1 x IDE connector, 2 x IDE devices could be connected, Supports ATA 66/100 - 1 x Floppy Drive, supports 360K/720K/1.2M/1.44M/2.88M floppy disk
Sound	- Onboard ALC883 Chipset - Supports 6/8 channel HD Audio,24 bit Audio Codec - Positioning Audio Support A3D, I3DL2 - Front Panel Jumper, provides stereo MIC port on front panel
Onboard LAN	- Onboard Marwell 88E8056
Expansion Slots	- 1 x PCI Express x16 slot - 2 x PCI slots - Support PCI Bus interface v2.2 compliant
Form Factor	- Micro ATX (208*243.8 mm)

1.2 Specifications-2 (for JW-IG31-AR/CF)

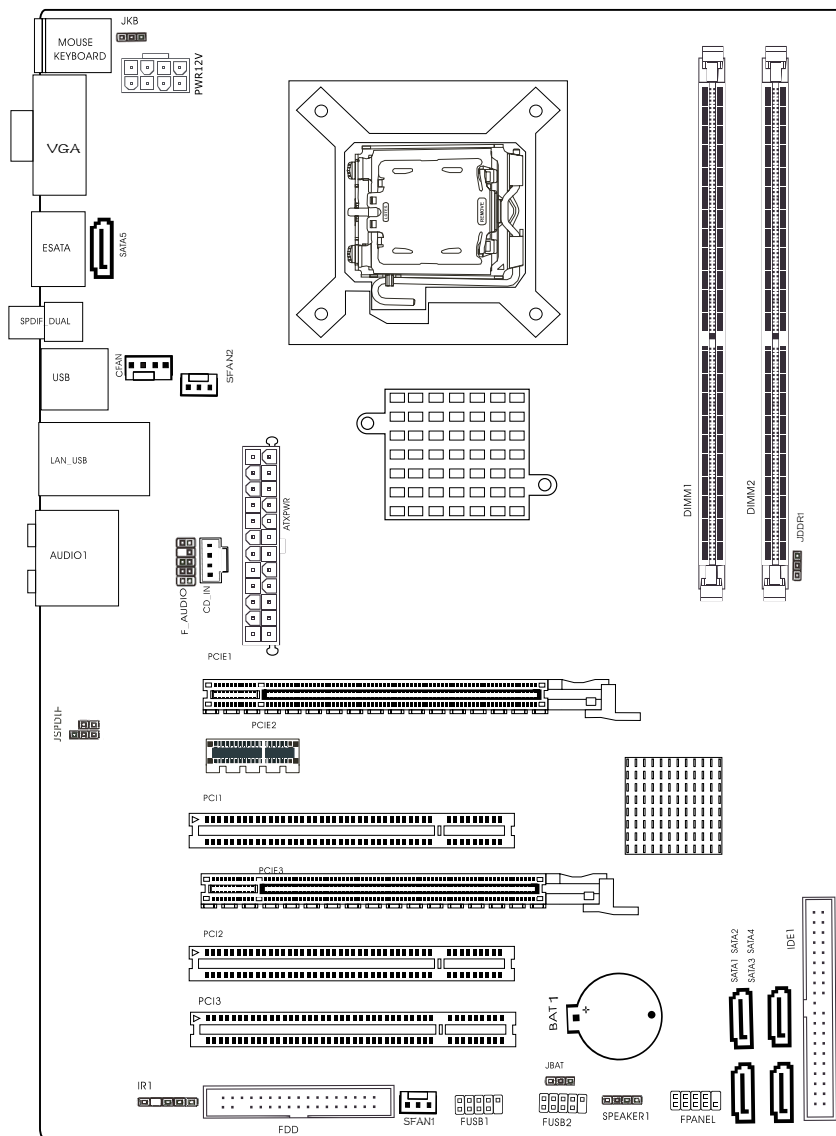
CPU	- LGA775 socket for Intel® Core™2 Extreme/ Core™2 Quad/ Core™2 Duo/ Pentium® Dual Core/ Pentium® D/Pentium® 4 (800MHz FSB)/ Celeron® (Conroe-L) Processors - FSB 1333MHz/1066MHz/800MHz/ - Hyper Threading Technology
Main Chipset	- Based on G31 + ICH7 - ICH7: Intel FW82801GB
Graphics	- Intel Graphics Media Accelerator 3100
Main Memory	- 2 x 240-pin DIMM slots support - Maximum memory capacity up to 4GB - Supports Dual Channel DDRII 667/800MHz
BIOS	- Supports Plug&Play - Supports BIOS ROM Write Protect - Supports Advanced Power Management ACPI,STR (S3 Function) - Supports 2x SYS FAN, 1x CPU FAN - CPU temperature, Fan speed, System Voltage monitoring
I/O Chipset	- Onboard Winbond W83627
Integrated Ports	- 1 x PS/2 Keyboard port - 1 x PS/2 Mouse port - 1 x VGA port - 1 x Debug LED (Optional) - 1 x SPDIF IN/Out port (Optional) - 1 x RJ45 port - 8 x USB 2.0 ports, USB 1.1 is compliant - 1 x eSATA port - 1 x IR port (optional) - 4 x SATA ports by ICH7, Maximum Speed to 3GB/s - 1 x IDE connector, 2 x IDE devices could be connected, Supports ATA 66/100 - 1 x Floppy Drive, supports 360K/720K/1.2M/1.44M/2.88M floppy disk
Sound	- Onboard ALC888 Chipset - Supports 6/8 channel HD Audio, 24 bit Audio Codec - Positioning Audio Support A3D, I3DL2 - Front Panel Jumper, provides stereo MIC port on front panel
Onboard LAN	- Onboard Realtek RTL8810S/SC
Expansion Slots	- 2 x PCI Express x16 slot (Including one x16 slot, another running at x4 speed) - 1 x PCI Express x1 slot - 3 x PCI slots - Support PCI Bus interface v2.2 compliant
Form Factor	- ATX (199.9*304.8 mm)

1.3 Mainboard Layout - 1 (PCB Layout for JW-IG31-MX)



(This picture is only for reference)

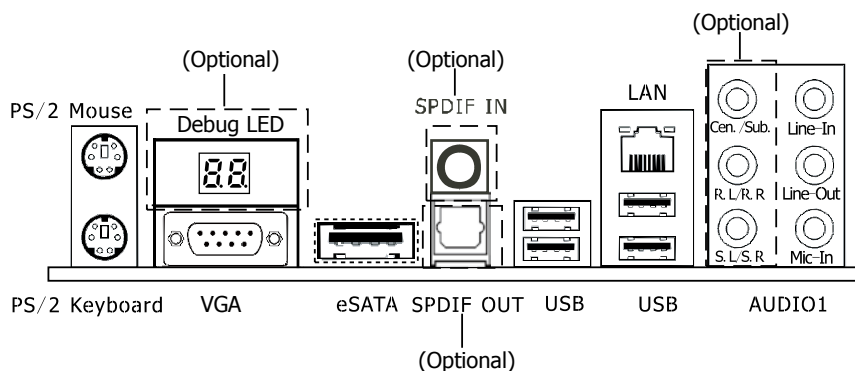
1.3 Mainboard Layout - 2 (PCB Layout for JW-IG31-AR/CF)



(This picture is only for reference)

1.4 Connecting Rear Panel I/O Devices

The rear I/O part of these mainboard provides the following I/O ports:



(This picture is only for reference)

- PS/2 Mouse: Connect to PS/2 mouse.
- PS/2 Keyboard: Connect to PS/2 keyboard.
- Debug LED: Display error code. (please reference attached 1)
- VGA: Connect to monitor input.
- eSATA: Connect to peripheral SATA devices. The peripheral SATA devices must connect inside SATA connectors.
- SPDIF OUT: Connect to digital audio device.
- LAN: Connect to Local Area Network.
- USB: Connect to USB devices such as scanner, digital speakers, monitor, mouse, keyboard, hub, digital camera, joystick etc.
- AUDIO1:
 - Cen./Sub. (Center / Subwoofer): Connect to the center and subwoofer channel in the 7.1 channel audio system.
 - R.L./R.R. (Rear Left / Rear Right): Connect to the rear left and rear right channel in the 7.1 channel audio system.
 - S.L./S.R. (Surround Left / Surround Right): Connect to the surround left and surround right channel in the 7.1 channel audio system.
 - Line-In: Connect to the line out from external audio sources.
 - Line-Out: Connect to the front left and front right channel in the 7.1-channel or regular 2-channel audio system.
 - Mic-In: Connect to the plug from external microphone.

Chapter 2 Hardware Setup

2.1 Choosing a Computer Chassis



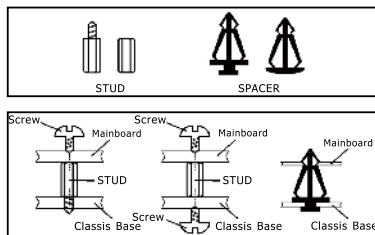
The mainboard and its component layouts illustrated in this chapter were based mainly on model "JW-IG31-MX", unless specifically stated.

- Choose a chassis big enough to install this mainboard.
- As some features for this mainboard are implemented by cabling connectors on the mainboard to indicators and switches or buttons on the chassis, make sure your chassis supports all the features required.
- If there is possibility of adopting some more hard drives, make sure your chassis has sufficient power and space for them.
- Most chassis have alternatives for I/O shield located at the rear panel. Make sure the I/O shield of the chassis matches the I/O port configuration of this mainboard. You can find an I/O shield specifically designed for this mainboard in its package.

2.2 Installing Mainboard

Most computer chassis have a base with many mounting holes to allow the mainboard to be securely attached, and at the same time, prevent the system from short circuits. There are two ways to attach the mainboard to the chassis base: (1) with studs, or (2) with spacers.

Basically, the best way to attach the board is with studs. Only if you are unable to do this should you attach the board with spacers. Line up the holes on the board with the mounting holes on the chassis. If the holes line up and there are screw holes, you can attach the board with studs. If the holes line up and there are only slots, you can only attach with spacers. Take the tip of the spacers and insert them into the slots. After doing this to all the slots, you can slide the board into position aligned with slots. After the board has been positioned, check to make sure everything is OK before putting the chassis back on.



Always power off the computer and unplug the AC power cord before adding or removing any peripheral or component. Failing to do so may cause severe damage to your mainboard and/or peripherals. Plug in the AC power cord only after you have carefully checked everything.

To install this mainboard:

1. Locate all the screw holes on the mainboard and the chassis base.
2. Place all the studs or spacers needed on the chassis base and have them tightened.
3. Face the mainboard's I/O ports toward the chassis's rear panel.
4. Line up all the mainboard's screw holes with those studs or spacers on the chassis.
5. Install the mainboard with screws and have them tightened.



To prevent shorting the PCB circuit, please REMOVE the metal studs or spacers if they are already fastened on the chassis base and are without mounting-holes on the mainboard to align with.

2.3 Installation of the CPU and CPU Cooler

Before installing the CPU, please comply with the following conditions:

1. Please make sure that the mainboard supports the CPU.
2. Please take note of the one indented corner of the CPU. If you install the CPU in the wrong direction, the CPU will not insert properly. If this occurs, please change the insert direction of the CPU.
3. Please add an even layer of heat sink paste between the CPU and CPU cooler.
4. Please make sure the CPU cooler is installed on the CPU prior to system use, otherwise overheating and permanent damage of the CPU may occur.
5. Please set the CPU host frequency in accordance with the processor specifications. It is not recommended that the system bus frequency be set beyond hardware specifications since it does not meet the required standards for the peripherals. If you wish to set the frequency beyond the proper specifications, please do so according to your hardware specifications including the CPU, graphics card, memory, hard drive, etc.

2.3.1 Installation of the CPU

1. Open the socket lever by pushing the lever down and away from the socket (see Figure 1, 1 and 2).

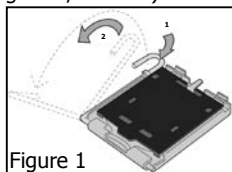


Figure 1

2. Lift the load plate. Do not touch the socket contacts (see Figure 2, 3 and 4)

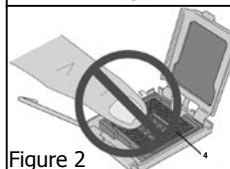
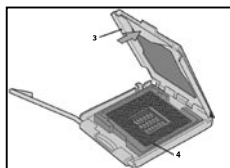


Figure 2

4. Remove the processor from the protective processor cover. Hold the processor only at the edges, being careful not to touch the bottom of the processor (see Figure 4). Do not discard the protective processor cover. Always replace the processor back to the package if the processor is removed from the socket.

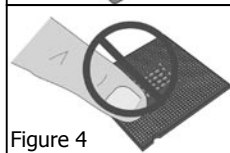


Figure 4

6. Pressing down on the load plate (Figure 6, 9) close and engage the socket lever (Figure 6, 10).

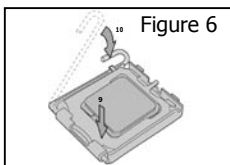


Figure 6

3. Remove the plastic protective socket cover from the load plate (see Figure 3, 5). Do not discard the protective socket cover. Always replace the socket cover if the processor is removed from the socket.

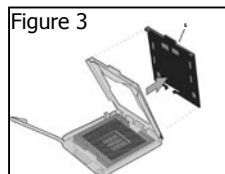


Figure 3

5. Hold the processor with your thumb and index fingers oriented as shown in Figure 5. Make sure fingers align to the socket cutouts (see Figure 5, 6). Align notches (see Figure 5, 7) with the socket see (Figure 5, 8). Lower the processor straight down without tilting or sliding the processor in the socket.

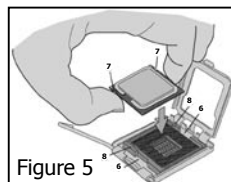


Figure 5

2.3.2 Installation of the CPU Cooler

For proper installation, please kindly refer to the instruction manuals of your CPU Cooler.

2.4 Installation of Memory Modules

This mainboard provides two 240-pin DDRII (Double Data Rate) DIMM slots, and supports Dual Channel Memory Technology. For dual channel configuration, you always need to install two identical (the same brand, speed, size and chip-type) memory modules in the DDRII DIMM slots to activate Dual Channel Memory Technology. Otherwise, it will operate at single channel mode.

To reach the performance of Dual Channel DDR2, the following rules must be obeyed:

For 2-DIMM dual-channel installation:

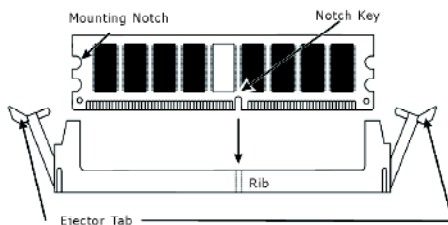
Populate DIMM modules of the same type and size on slots [DIMM1]+[DIMM2].



Static electricity can damage the electronic components of the computer or optional boards. Before starting these procedures, ensure that you are discharged of static electricity by touching a grounded metal object briefly.

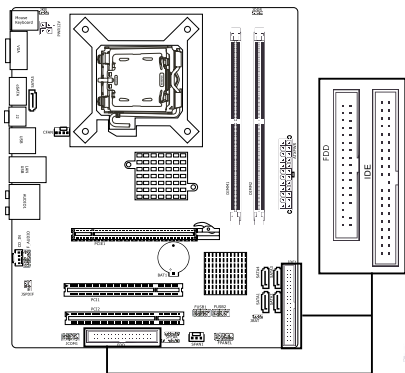
To install system memory:

1. Power off the computer and unplug the AC power cord before installing or removing memory modules.
2. Locate the DIMM slot on the board.
3. Hold two edges of the DIMM module carefully, keep away from touching its connectors.
4. Align the notch key on the module with the rib on the slot.
5. Firmly press the module into the slots until the ejector tabs at both sides of the slot automatically snap into the mounting notch. Do not force the DIMM module in with extra force as the DIMM module only fits in one direction.
6. To remove the DIMM modules, push the two ejector tabs on the slot outward simultaneously, and then pull out the DIMM module.



2.5 Connecting Peripheral Devices

2.5.1 Floppy and IDE Disk Drive Connectors



Each of the IDE port connects up to two IDE drives at Ultra ATA 66/100 mode by one 40-pin, 80-conductor, and 3-connector Ultra ATA/66 ribbon cables.

Connect the single end (blue connector) at the longer length of ribbon cable to the IDE port of this board, the other two ends (gray and black connector) at the shorter length of the ribbon cable to the connectors of your hard drives.

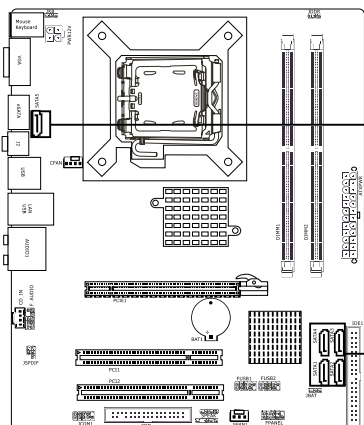
Make sure to configure the "Master" and "Slave" relation before connecting two drives by one single ribbon cable. The red line on the ribbon cable must be aligned with pin-1 on both the IDE port and the hard-drive connector.

The FDD connector connects up to two floppy drives with a 34-wire, 2-connector floppy cable. Connect the single end at the longer length of ribbon cable to the FDD on the board, the two connectors on the other end to the floppy disk drives connector. Generally you need only one floppy disk drive in your system.

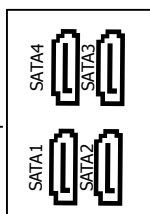
The red line on the ribbon cable must be aligned with pin-1 on both the FDD port and the floppy connector.

2.5.2 Serial ATA Connectors

Each SATA connector serves as one single channel to connect one SATA device by SATA cable.



• eSATA: Connect to peripheral SATA devices. The peripheral SATA devices must connect inside SATA connectors. (Optional)



2.5.3 PCI and PCI Express slots

Install PCI Express X16 graphics card into slot "PCI-E1".

Install PCI card into slots "PCI1" or "PCI2".

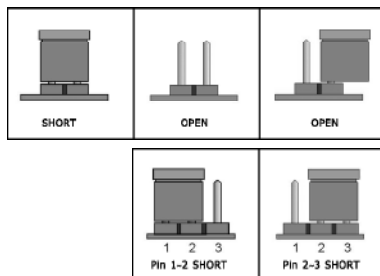
Chapter 3 Jumpers & Headers Setup

3.1 Checking Jumper Settings

- For a 2-pin jumper, plug the jumper cap on both pins will make it CLOSE (SHORT). Remove the jumper cap, or plug it on either pin (reserved for future use) will leave it at OPEN position.
- For 3-pin jumper, pin 1~2 or pin 2~3 can be shorted by plugging the jumper cap in.

How to identify the PIN1 jumpers?

Please check the mainboard carefully, the PIN1 is marked by "1" or white thick line.

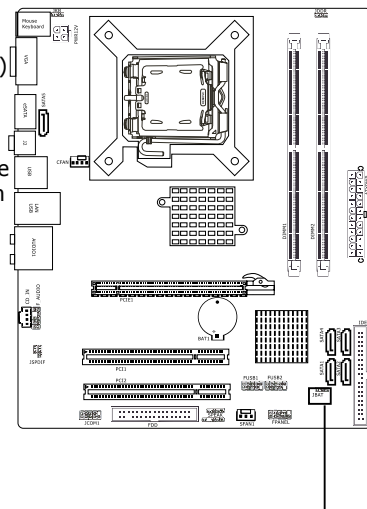
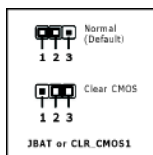


3.2 CMOS Memory Clearing Header

The time to clear the CMOS memory occurs when (a) the CMOS data becomes corrupted, (b) you forgot the supervisor or user password preset in the BIOS menu, (c) you are unable to boot-up the system because the CPU ratio/clock was incorrectly set in the BIOS menu, or (d) whenever there is modification on the CPU or memory modules.

This header uses a jumper cap to clear the CMOS memory and have it reconfigured to the default values stored in BIOS.

- Pins 1 and 2 shorted (Default): Normal operation.
- Pins 2 and 3 shorted: Clear CMOS memory.



To clear the CMOS memory and load in the default values:

- Power off the system.
- Set pin 2 and pin 3 shorted by the jumper cap. Wait for a few seconds. Set the jumper cap back to its default settings --- pin 1 and pin 2 shorted.
- Power on the system.
- For incorrect CPU ratio/clock settings in the BIOS, press <Del> key to enter the BIOS setup menu right after powering on system.
- Set the CPU operating speed back to its default or an appropriate value.
- Save and exit the BIOS setup menu.

3.3 Keyboard Power Function(JKB)

- Pin 1-2 short: Disabled power on by keyboard
- Pin 2-3 short: Support power on by keyboard



JKB:

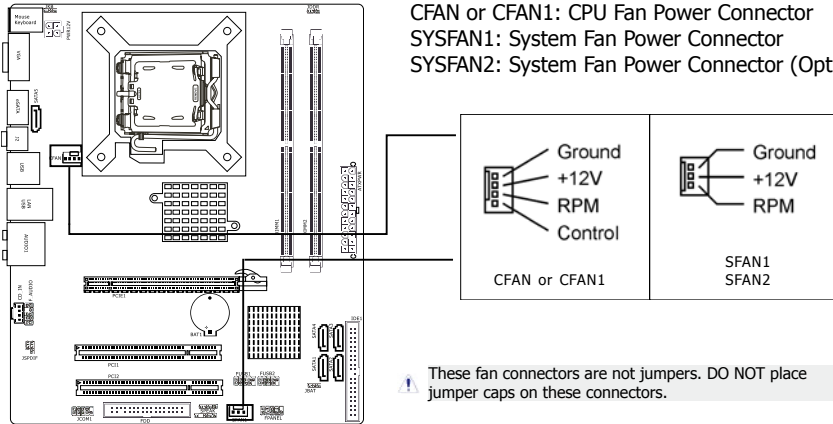
3.4 FAN Power Connectors

These connectors each provide power to the cooling fans installed in your system.

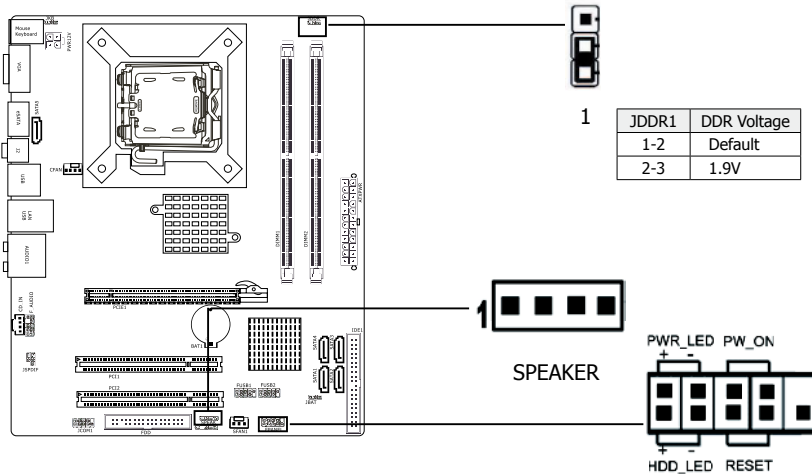
CFAN or CFAN1: CPU Fan Power Connector

SYSFAN1: System Fan Power Connector

SYSFAN2: System Fan Power Connector (Optional)



3.5 Front Panel Switches & Indicators Headers



HDD_LED (Hard Driver LED Header)

Connect the HDD LED cable to these PINs, in order to see the HDD status

RESET (Reset Control)

This connector connects to the case-mounted reset switch for rebooting your computer without having to turn off your power switch. This is a preferred method of rebooting in order to prolong the life of the system's power supply.

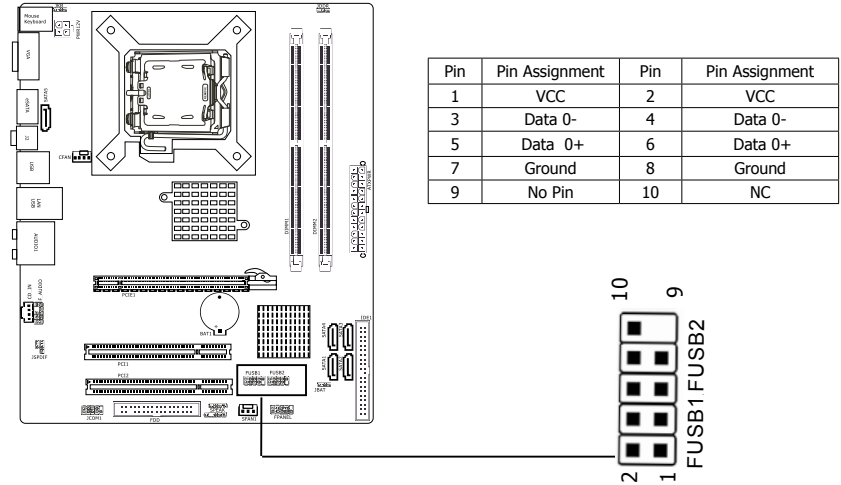
PWR-ON (Power Button)

This connector connects to the case-mounted power switch to power ON/OFF the system.

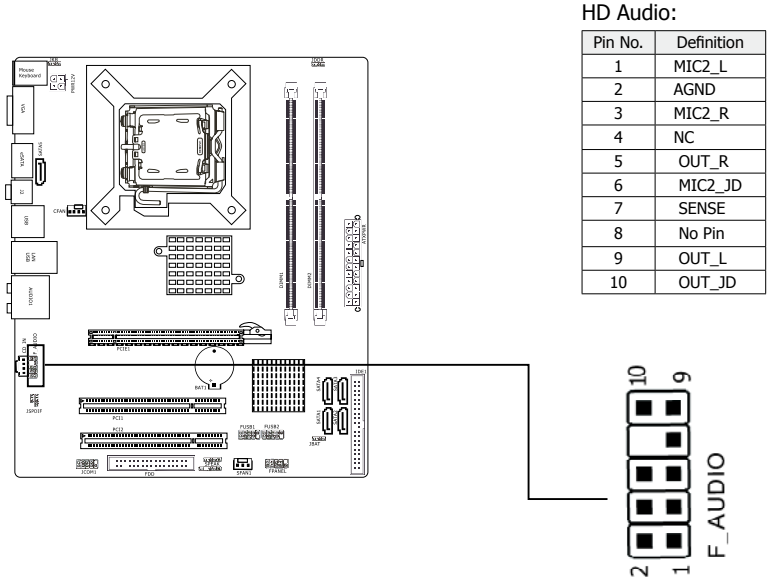
SPEAKER (Speaker)

This 4-pin connector connects to the case-mounted speaker. You should follow the instruction of the speaker cable.

3.6 Additional USB Port Headers

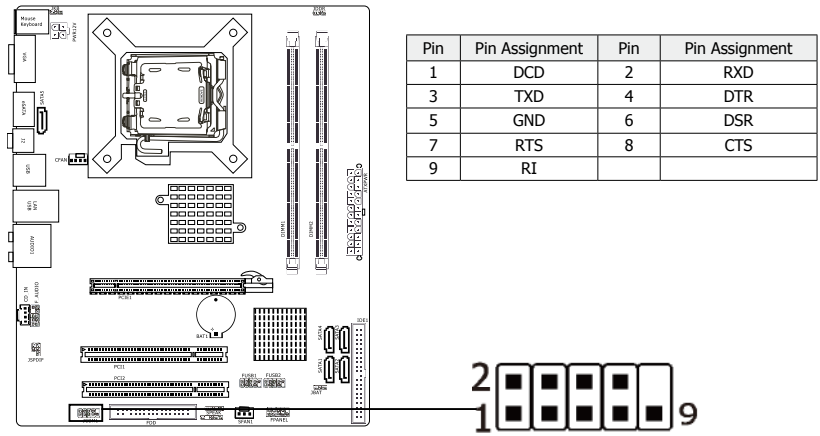


3.7 Front Panel Audio Connection Header



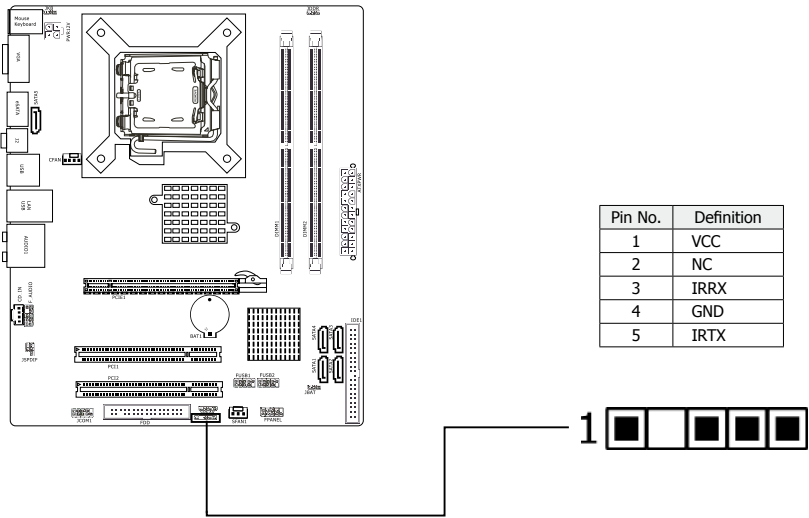
3.8 Serial Port Header

This JCOM1 header supports a serial port module.



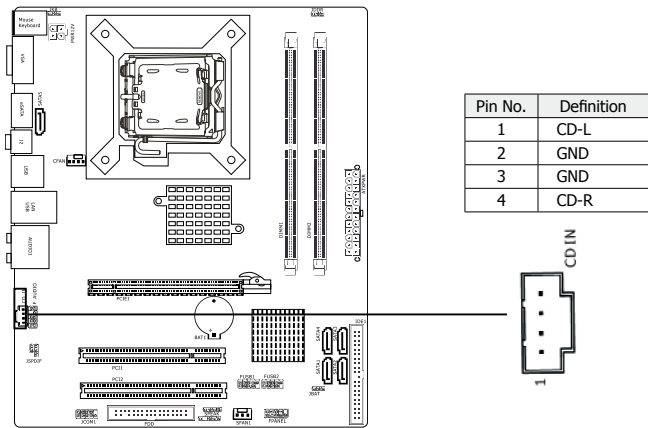
3.9 IR Connection Header

Connect the IrDA cable (if available) to this IR connector.



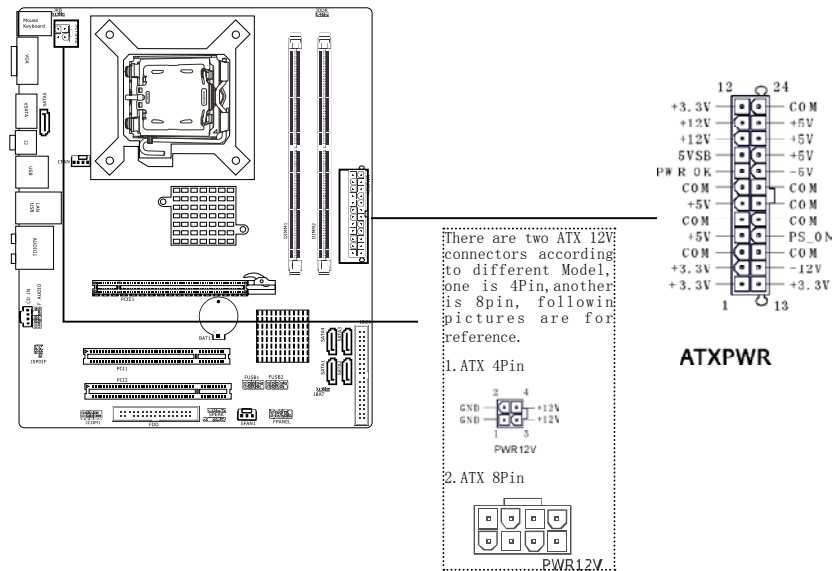
3.10 Internal Audio Connectors

Connect CD-ROM or DVD-ROM audio out to the connector.



3.11 ATX Power Input Connectors

This mainboard provides two power connectors to connect power supplier.



Chapter 4 BIOS Setup Utility

BIOS stands for Basic Input and Output System. It was once called ROM BIOS when it was stored in a Read-Only Memory (ROM) chip. Now manufacturers would like to store BIOS in EEPROM which means Electrically Erasable Programmable Memory. BIOS used in this series of mainboard is stored in EEPROM, and is the first program to run when you turn on your computer.

BIOS performs the following functions:

1. Initializing and testing hardware in your computer (a process called "POST", for Power On Self Test).
2. Loading and running your operating system.
3. Helping your operating system and application programs manage your PC hardware by means of a set of routines called BIOS Run-Time Service.

4.1 About BIOS Setup

BIOS Setup is an interactive BIOS program that you need to run when:

1. Changing the hardware of your system. (For example: installing a new Hard Disk etc.)
2. Modifying the behavior of your computer. (For example: changing the system time or date, or turning special features on or off etc.)
3. Enhancing your computer's behavior. (For example: speeding up performance by turning on shadowing or cache)

4.2 To Run BIOS Setup

First access BIOS setup menu by pressing <F1> key after "POST" is complete (before OS is loaded). After the first BIOS be setupped(or loaded default values) and save, the <DEL> key will be pressed if you will enter BIOS setup menu.

4.3 About CMOS

CMOS is the memory maintained by a battery. CMOS is used to store the BIOS settings you have selected in BIOS Setup. CMOS also maintains the internal clock. Every time you turn on your computer, the BIOS Looks into CMOS for the settings you have selected and configures your computer accordingly. If the battery runs out of power, the CMOS data will be lost and POST will issue a "CMOS invalid" or "CMOS checksum invalid" message. If this happens, you have to replace the battery and check and configure the BIOS Setup for the new start.

4.4 The POST (Power On Self Test)

POST is an acronym for Power On Self Test. This program will test all things the BIOS does before the operating system is started. Each of POST routines is assigned a POST code, a unique number which is sent to I/O port 080h before the routine is executed.

4.5 BIOS Setup — CMOS Setup Utility



- In order to increase system stability and performance, our engineering staff is constantly improving the BIOS menu. The BIOS setup screens and descriptions illustrated in this manual are for your reference only, and may not completely match with what you see on your screen.
- Do not change the BIOS parameters unless you fully understand its function.

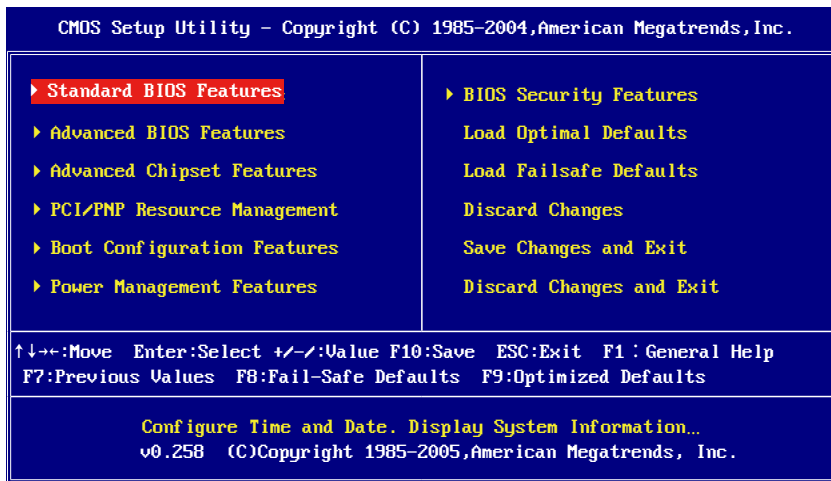
4.5.1 CMOS Setup Utility

After powering up the system, the BIOS message appears on the screen, when the first time or when CMOS setting wrong, there is following message appears on the screen, but if the first BIOS be setup (or loaded default values) and save, the <DEL> key will be pressed if you will enter BIOS setup menu.

Press F1 to Run SETUP

If this message disappears before you respond, restart the system by pressing <Ctrl> + <Alt> + <Del> keys, or by pressing the reset button on computer chassis. Only when these two methods should be fail that you restart the system by powering it off and then back on.

After pressing <F1> or <Del> key, the main menu appears.



- **Standard BIOS Features**
This setup page includes all the items in standard compatible BIOS.
- **Advanced BIOS Features**
This setup page includes all the items of AMI special enhanced features.
- **Advanced Chipset Features**
This setup page includes the chipset features.
- **PCI/PNP Resource Management**
This setup page includes all the configurations of PCI & PNP resources.
- **Boot Configuration Features**
This setup page includes the configurations of Boot Settings.
- **Power Management Features**
This setup page includes all the items of Green function features.

- BIOS Security Features
Change, set, or disable password. It allows you to limit access to the system and Setup, or just to Setup.
- Load Optimal Defaults
Optimized Defaults indicates the value of the system parameters which the system would be in best performance configuration.
- Load Failsafe Defaults
Fail-Safe Defaults indicates the value of the system parameters which the system would be in safe configuration.
- Discard Changes
Abandon all CMOS value changes.
- Save Changes and Exit
Save CMOS value settings to CMOS and exit setup.
- Discard Changes and Exit
Abandon all CMOS value changes and exit setup.

4.5.2 Control Keys

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item.

Please check the following table for the function description of each control key.

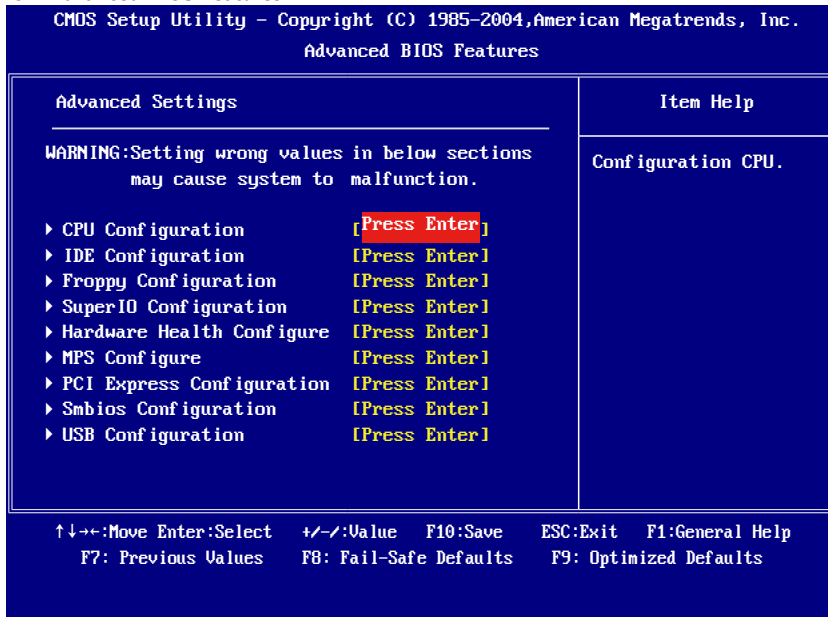
Control Key(s)	Function Description
← / →	Move cursor left or right to select Screens
↑ / ↓	Move cursor up or down to select items
+ / - / PU / PD	To Change option for the selected items
<Enter>	To bring up the selected screen
<ESC>	Main Menu - Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu - Exit current page and return to Main Menu
<F1>	General help
<F2>	Item Help
<F5>	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
<F7>	Discard Changes
<F8>	Load Failsafe Defaults
<F9>	Load Optimal Defaults
<F10>	Save configuration changes and exit setup

4.5.3 Standard BIOS Features

CMOS Setup Utility - Copyright (C) 1985-2004,American Megatrends, Inc Standard BIOS Features	
System Overview	Item Help
AMIBIOS Version :08.00.14 Buid Date :09/18/07 ID :G310A008	Use [ENTER],[TAB] or [SHIFT-TAB] to select a field.
Processor Genuine Intel (R) CPU @ 2.40GHz Speed :2400MHz Count :1	Use [+] or [-] to configure system Time.
System Memory Size :512MB	
System Time [04:57:25] System Date [Mon 09/24/2007]	
Language [English]	
↑↓→←:Move Enter:Select +/=:Value F10:Save ESC:Exit F1:General Help F7: Previous Values F8: Fail-Safe Defaults F9: Optimized Defaults	

- **AMIBIOS**
This is about AMIBIOS information, including BIOS version buid date and ID number.
- **Processor**
This display CPU information which you used in your computer.
- **System Memory**
This display memory size which you used in your computer.
- **System Time (hh:mm:ss)**
This item sets the time you specify (usually the current time) in the format of [Hour], [Minute],and [Second].
- **System Date (mm:dd:yy)**
This item sets the date you specify (usually the current date) in the format of [Month], [Date],and [Year].

4.5.4 Advanced BIOS Features



- ▶ CPU Configuration
Click <Press Enter> key to enter its submenu, it will be display configured CPU information, including Module Version, Manufacturer , CPU type, Frequency, FSB Speed, Cache L1 , Cache L2 and so on.
- ▶ IDE Configuration
Click <Press Enter> key to enter its submenu, it will be display IDE configuration, also you can set the ATA/IDE, SATA function from the options and set the IDE boot order, or set it as IDE Master, Slave within them.
- ▶ Floppy Configuration
Click <Press Enter> key to enter its submenu, it will be display floppy configuration, and this item sets the type of floppy drives installed.
- ▶ SuperIO Configuration
Click <Press Enter> key to enter its submenu, it will be display super IO configuration, and this item sets the function for onboard floppy controller, serial port address, parallel address, keyboard wakeup and mouse wakeup.
- ▶ Hardware Health Configure
Click <Press Enter> key to enter its submenu, it will be display hardware health configuration, including System temperature, CPU temperature, FAN speed and all kinds of voltages.
- ▶ MPS Configuration
Click <Press Enter> key to enter its submenu, it will be display MPS configuration, this item specifies which version of MPS (Multi-Processor Specification) this mainboard will use. Leave this item at its default setting.

► PCI Express Configuration

Click <Press Enter> key to enter its submenu, it will be display PCI express configuration, this item sets the active state for express PCI between disabled and enabled.

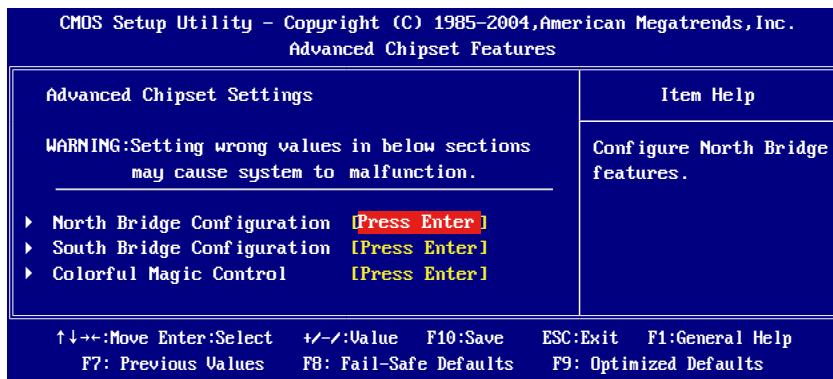
► Smbios Configuration

Click <Press Enter> key to enter its submenu, it will be display Smbios configuration, this item sets SMBIOS SMI support for PnP function within the optional, between enabled and disabled.

► USB Configuration

Click <Press Enter> key to enter its submenu, it will be display USB configuration, this item allows you to select USB function within the environment.

4.5.5 Advanced Chipset Features



► North Bridge Configuration

Click <Press Enter> key to enter its submenu, it will be display north bridge chipset configuration, this item sets the memory remap feature, DRAM frequency, DRAM timing by SPD, memory hole, initiate graphic adapter, internal graphics mode select and PEG port selection.

► South Bridge Configuration

Click <Press Enter> key to enter its submenu, it will be display south bridge chipset configuration, this item sets USB functions, audio controller, PCIE ports selection.

► Colorful Magic Control

Click <Press Enter> key to enter its submenu, it will be display voltage configuration and clock configuration, the CPUvcore and Memoryvcore will automatic on the screen, also, the CPU Voltage and Memory voltage can be set according to your selection; the clock configuration sets the PCIE LAN, BIOS write protect function.

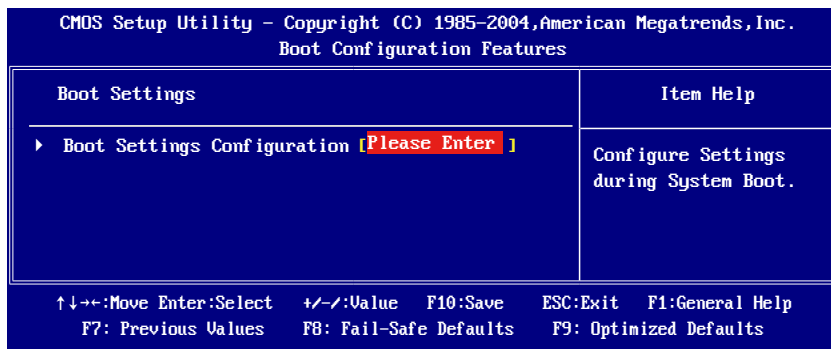
4.5.6 PCI/PNP Resource Management

CMOS Setup Utility - Copyright (C) 1985-2004, American Megatrends, Inc. PCI/PNP Resource Management	
Advanced PCI/Pnp Settings	Item Help
WARNING: Setting wrong values in below sections may cause system to malfunction.	
Clear NVRAM	[No]
Plug & Play O/S	[No]
PCI Latency Timer	[64]
Allocate IRQ to PCI VGA	[Yes]
Palette Snooping	[Disabled]
PCI IDE BusMaster	[Enabled]
OffBoard PCI/ISA IDE Card	[Auto]
IRQ3	[Available]
IRQ4	[Available]
IRQ5	[Available]
IRQ7	[Available]
IRQ9	[Available]
IRQ10	[Available]
.....	
↑↓→←: Move Enter: Select +/-/: Value F10: Save ESC: Exit F1: General Help F7: Previous Values F8: Fail-Safe Defaults F9: Optimized Defaults	

- Clear NVRAM
This item for clearing NVRAM during system boot.
- Plug & Play O/S
This item lets the BIOS configure all the devices in the system or lets the operating system configure plug and play (PnP) devices not required for boot if your system has a Plug and Play operating system.
- PCI Latency Time
This item sets value in units of PCI clocks for PCI device latency timer register.
- Allocate IRQ to PCI VGA
This item assigns IRQ to PCI VGA card if card requests IRQ or doesn't assign IRQ to PCI VGA card even if card requests an IRQ.
- Palette Snooping
This item informs the PCI devices that an ISA graphics device is installed in the system so the card will function correctly.
- PCI IDE BusMaster
This item uses PCI busmastering for BIOS reading / writing to IDE drives.
- OffBoard PCI/ISA IDE Card
This item works for most PCI IDE cards, some PCI IDE cards may require this to be set to the PCI slot number that is holding the card.

- IRQ3/4/5/6/7/9/10/11/14/15
This specified IRQ is available to be used by PCI/PnP devices or reserved for use by Legacy ISA devices.
- DMA Channel 0/1/3/5/6/7
This specified DMA is available to be used by PCI/PnP devices or reserved for use by Legacy ISA devices.
- Reserved Memory Size
This item is for size of memory block to reserve for legacy ISA devices.

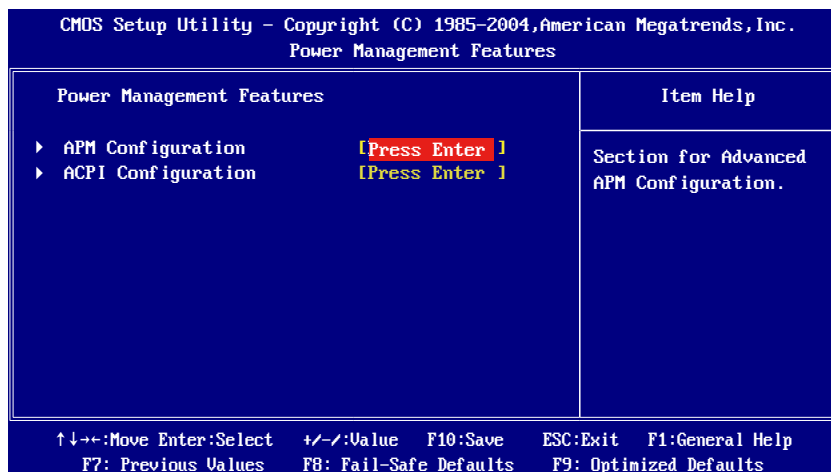
4.5.7 Boot Configuration Features



▶ Boot Settings Configuration

Click <Press Enter> key to enter its submenu, it will be display boot setting configuration, and the all functions allow BIOS to skip certain tests while booting, whether displays normal POST messages or OEM Logo instead of POST messages through sets the Quit Boot.

4.5.8 Power Management Features



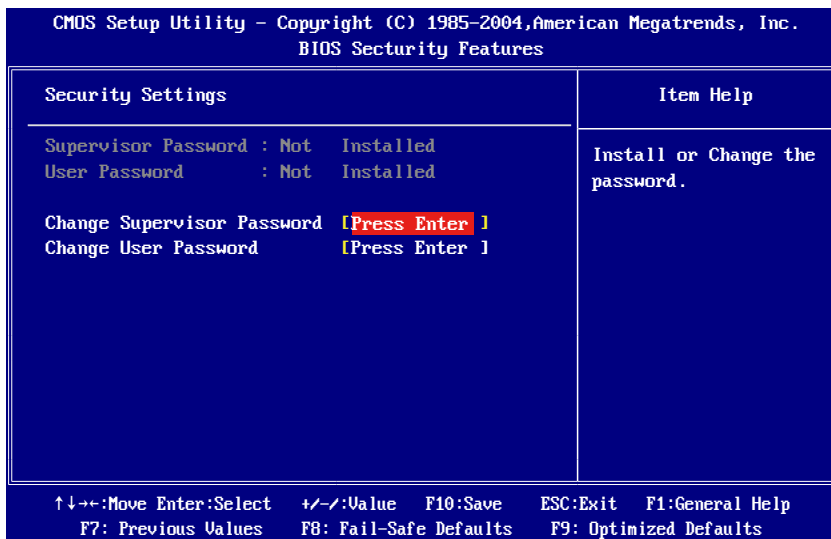
► APM Configuration

This item allows you to set Power Management/APM between Enable or disable, Power down video in suspend or standby Mode, Power down hard disk in suspend or standby mode, Go into suspend in the specified time, Select the Duty Cycle in Throttle mode, Monitor KBC ports 60/6 and go into On/Off, or suspend when power button is pressed.

► ACPI Configuration

This item allows you to select ACPI Suspend Type (S3 mode is optional) and allows you to set or Enabled / Disabled the Advanced configuration.

4.5.9 BIOS Security Features



When Chage Supervisor/User Password function is selected, the following message appears at the center of the screen to assist you in creating a password.



Type the password, up to eight characters, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>.

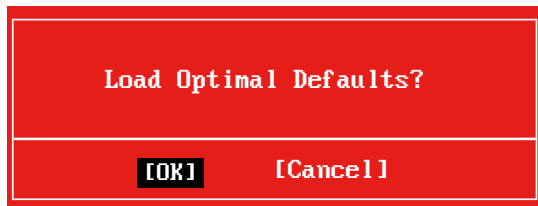


Note: Don't forget your password. If you forget the password, you will have to open the computer case and clear all information in the CMOS before you can start up the system. But by doing this, you will have to reset all previously set options.

You may also press <Esc> to abort the selection.

4.5.10 Load Optimized Defaults

This option opens a dialog box that let you install optimized defaults for all appropriate items in the Setup Utility. Select <OK> and then <Enter> to install the defaults. select <Cancel> and then <Enter> to not install the defaults. The optimized defaults place demand on the system that may be greater than the performance level of the components, such as the CPU and the memory. You can cause fatal errors or instability if you install the optimized defaults when your hardware does not support them. If you only want to install setup defaults for a specific option, select and display that option, and then press <F9>.



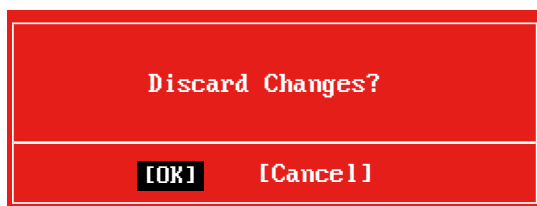
4.5.11 Load Failsafe Defaults

This option opens a dialog box that lets you install fail-safe defaults for all appropriate items in the Setup Utility: Select <Ok> and the <Enter> to install the defaults. Select <Cancel> and then <Enter> to not install the defaults. The fail-safe defaults place no great demand on the system and are generally stable. If your system is not functioning correctly, try installing the fail-safe defaults as a first step in getting your system working properly again. If you only want to install fail-safe defaults for a specific option, select and display that option, and then press <F8>.



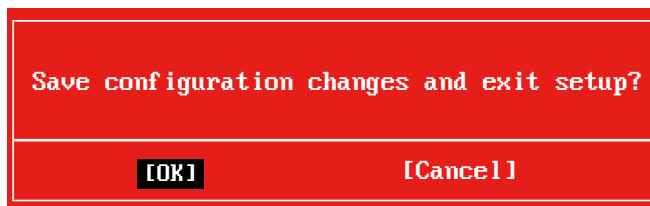
4.5.12 Discard Changes

Select <Ok> and press <Enter> to discard changes and exit, or press <Cancel> to return to the main menu.



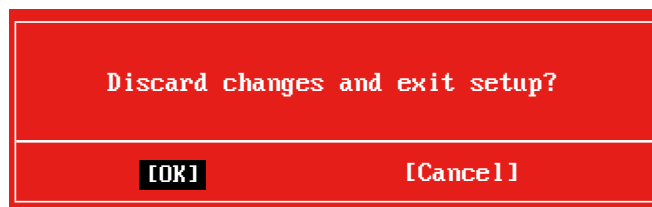
4.5.13 Save Changes and Exit

Highlight this item and select <Ok>, then press <Enter> to save the changes that you have made in the Setup Utility and exit the Setup Utility. Or press <Cancel> to return to the main menu.



4.5.14 Discard Changes and Exit

Highlight this item and select <Ok>, then press <Enter> to discard any changes that you have made in the Setup Utility and exit the Setup Utility. Or press <Cancel> to return to the main menu.



Chapter 5 Driver Installation

Check your package and there is Driver CD included. This CD consists of all drivers you need. In addition, this CD also include an auto detect software which can tell you which hardware is installed, and which drivers needed so that your system can function properly.

Insert CD into your CD-ROM drive and the menu should appear as below. If the menu does not appear, double-click My Computer / double-click CD-ROM drive or click Start / click Run / type X:\AUTORUN.EXE (assuming X is your CD-ROM drive).



(This picture is only for reference)

From the Main MENU you may make 4 selections:

1. +Mainboard Driver installation Utility: Click to enter the driver installation menu.
2. +Useful Software Utility: Click to enter the utilities installation menu.
3. >Browse CD: Click to browse the contents of this "Driver & Utility CD".
4. Exit: Click to exit this installation menu.

When you choose Mainboard Driver installation Utility, the drivers menu should appear as below:



(This picture is only for reference)

From the Drivers MENU you may make 4 selections:

1. INTEL Chipset Installation Utility
2. INTEL Chipset VGA Graphics Driver
3. Realtek LAN Driver
4. Realtek AC'97 Audio Driver

APPENDIX 1

POST Codes

NOTE: EISA POST codes are typically output to port address 300h.
ISA POST codes are output to port address 80h.

Code (hex)	Name	Description
C0	Turn Off Chipset Cache	OEM Specific-Cache control
1	Processor Test 1	Processor Status (1FLAGS) Verification. Tests the following processor status flags: carry, zero, sign, overflow, The BIOS sets each flag, verifies they are set, then turns each flag off and verifies it is off.
2	Processor Test 2	Read/Write/Verify all CPU registers except SS, SP, and BP with data pattern FF and 00.
3	Initialize Chips	Disable NMI, PIE, AIE, UEI, SQWV Disable video, parity checking, DMA Reset math coprocessor. Clear all page registers, CMOS shutdown byte. Initialize timer 0, 1, and 2, including set EISA timer to a known state. Initialize DMA controllers 0 and 1. Initialize interrupt controllers 0 and 1. Initialize EISA extended registers.
4	Test Memory Refresh Toggle	RAM must be periodically refreshed to keep the memory from decaying. This function ensures that the memory refresh function is working properly.
5	Blank video, Initialize keyboard	Keyboard controller initialization.
6	Reserved	
7	Test CMOS Interface and Battery Status	Verifies CMOS is working correctly, detects bad battery.
BE	Chipset Default Initialization	Program chipset registers with power on BIOS defaults.
C1	Memory presence test	OEM Specific-Test to size on-board memory.
C5	Early Shadow	OEM Specific-Early Shadow enable for fast boot.
C6	Cache presence test	External cache size detection.
8	Setup low memory	Early chip set initialization. Memory presence test OEM chip set routines. Clear low 64K of memory. Test first 64K memory.

9	Early Cache Initialization	Cyrix CPU initialization. Cache initialization.
A	Setup Interrupt Vector Table	Initialize first 120 interrupt vectors with SPURIOUS_INT_HDLR and initialize INT 00h-1Fh according to INT_TBL.
B	Test CMOS RAM Checksum	Test CMOS RAM Checksum, if bad, or insert key pressed, load defaults.
C	Initialize keyboard (optional)	Detect type of keyboard controller. Set NUM_LOCK status.
D	Initialize Video Interface	Detect CPU clock. Read CMOS location 14h to find out type of video in use. Detect and Initialize Video Adapter.
E	Test Video Memory	Test video memory, write sign-on message to screen. Setup shadow RAM - Enable shadow according to Setup.
F	Test DMA Controller 0	BIOS checksum test. Keyboard detect and initialization.
10	Test DMA Controller 1	
11	Test DMA Page Registers	Test DMA Page Registers.
12-13 Reserved		
14	Test Timer Counter 2	Test 8254 Timer 0 Counter 2.
15	Test 8259-1 Mask Bits	Verify 8259 Channel 1 masked interrupts by alternately turning off and on the interrupt lines.
16	Test 8259-2 Mask Bits	Verify 8259 Channel 2 masked interrupts by alternately turning off and on the interrupt lines.
17	Test Stuck 8259's Interrupt Bits	Turn off interrupts then verify no interrupt mask register is on.
18	Test 8259 Interrupt Functionality	Force an interrupt and verify the interrupt occurred.
19	Test Stuck NMI Bits (Parity/IO Check)	Verify NMI can be cleared.
1A		Display CPU clock
1B-1E Reserved		
1F	Set EISA Mode	If EISA non-volatile memory checksum is good, execute EISA initialization. If not, execute ISA tests and clear EISA mode flag. Test EISA Configuration Memory Integrity (checksum & communication interface).
20	Enable Slot 0	Initialize slot 0 (System Board).

21-2F	Enable Slots 1-15	Initialize slots 1 through 15.
30	Size Base and Extended Memory	Size base memory from 256K to 640K and extended memory above 1MB.
31	Test Base and Extended Memory	Test base memory from 256K to 640K and extended memory above 1MB using various patterns. NOTE: This test is skipped in EISA mode and can be skipped with ESC key in ISA mode.
32	Test EISA Extended Memory	If EISA Mode flag is set then test EISA memory found in slots initialization. NOTE: This test is skipped in ISA mode and can be skipped with ESC key in EISA mode.
33-3B	Reserved	
3C	Setup Enabled	
3D	Initialize & Install Mouse	Detect if mouse is present, initialize mouse, install interrupt vectors.
3E	Setup Cache Controller	Initialize cache controller.
3F	Reserved	
BF	Chipset Initialization	Program chipset registers with Setup values.
40		Display virus protect disable or enable.
41	Initialize Floppy Drive & Controller	Initialize floppy disk drive controller and any drives.
42	Initialize Hard Drive & Controller	initialize hard drive controller and any drives.
43	Detect & Initialize Serial/Parallel Ports	Initialize any serial and parallel ports (also game port).
44	Reserved	
45	Detect & Initialize Math Coprocessor	Initialize math coprocessor.
46	Reserved	
47	Reserved	
48-4D	Reserved	

4E	Manufacturing POST Loop or Display Messages	Reboot if Manufacturing POST Loop pin is set. Otherwise display any messages (i.e., any non-fatal errors that were detected during POST) and enter Setup.
4F	Security Check	Ask password security (optional).
50	Write CMOS	Write all CMOS values back to RAM and clear screen.
51	Pre-boot Enable	Enable parity checker. Enable NMI, Enable cache before boot.
52	Initialize Option ROMs	Initialize any option ROMs present from C8000h to EFFFFh. NOTE: When FSCAN option is enabled, ROMs initialize from C8000h to F7FFFh.
53	Initialize Time Value	Initialize time value in 40h: BIOS area.
60	Setup Virus Protect	Setup virus protect according to Setup.
61	Set Boot Speed	Set system speed for boot
62	Setup NumLock	Setup NumLock status according to Setup.
63	Boot Attempt	Set low stack Boot via INT 19h.
B0	Spurious	If interrupt occurs in protected mode.
B1	Unclaimed NMI	If unmasked NMI occurs, display. Press F1 to disable NMI, F2 reboot.
E1-EF	Setup Pages	E1- Page 1, E2 - Page 2, etc.
FF	Boot	